

**REMARKS**

The Official Action of May 4, 2010 constitutes a final rejection of the claims. The Action and the references cited therein have been carefully reviewed. Favorable reconsideration and allowance of the claims are requested in view of the foregoing amendments and the following remarks.

**I. Claim Status and Amendments**

Claims 1, 5, 6, 8-13, and 20 presently appear in this application. Claims 8-13 and 20 have been withdrawn as non-elected subject matter. Claims 1, 5, and 6 have been examined on the merits and stand rejected. No claims have been allowed.

By way of the present amendment claim 1 has been amended and new dependent claim 21 has been added. Claim 1, as amended herein, specifies the properties of the claimed tooth coating composition when applied to teeth. These properties include a drying time less than 60 seconds and a durable duration of luster of at least 4 hours. Support can be found throughout the general disclosure. See for example, Table 1, paragraph [0049] of the originally filed application. See the discussion below with respect to the attached Table 4 for a further explanation of the support for amended claim 1. Support for new claim 21 can be found in the disclosure at

paragraphs [0001] and [0026] and original claim 14. No new matter has been added.

Claims 1, 5, 6, 8-13, and 20-21 are pending upon entry of this amendment, and these claims define patentable subject matter warranting their allowance for the reasons discussed herein.

## **II. Advisory Action**

In the Advisory Action dated July 7, 2010, the Examiner indicates that the After Final Amendment filed on June 9, 2010 would not be entered on the grounds that it raises new issues requiring further examination or search.

The Examiner contends that the newly added features of "the content of the rosin is in a range of 5 wt.% to 15 wt.%" and "total content of the shellac and the rosin is in a range of 15 wt.% to 25 wt.%" are not supported by the original disclosure and thus they appear to introduce new matter.

Applicants respectfully disagree.

First, it should be noted that the filing of the RCE with present amendment automatically enters the After Final Amendment.

Second, Applicants respectfully traverse the Examiner's position that the previous amendment constitutes new matter. The original application fully supports the claim features with respect to the range of rosin and the range of

shellac and rosin added in the After Final Amendment. Please see the attached Table 4 that helps to explain the support in the disclosure for the content ranges of Rosin and Shellac + Rosin of the After Final Amendment, as well, as the drying time and duration of luster of the instant amendment.

Table 4 was compiled by arranging the data from Examples 1-8, Comparative examples 1~6 and Table 1 of the originally filed specification of the present application in order to provide an easy comparison thereof and to show the relationship between the contents of the examples and the results of the testing for each.

As described in the original disclosure and as shown in Table 4, all of Examples 1-8, except Example 5, have a drying time of less than 60 seconds and a durable duration of luster of at least 4 hours. This is further support for the amendments in the instant amendment.

In comparative examples 1-6, only comparative example 4 has a drying time of less than 60 seconds, but it has no the durable duration of luster of at least 4 hours.

As shown in Table 4, a range of the content of rosins for Examples 1-8, with the exception of Example 5, is 5-15 wt%, and a range of the total content of shellac and rosin for Examples 1-8, with the exception of Example 5, is 15-25 wt%.

Example 5 has excellent properties of luster, durability, removal easiness and hiding power, but its drying time of 180 seconds is too long.

As discussed herein and in the disclosure, the drying time of the applied coat in a human is preferably as short as possible. When the drying time is less than 60 seconds, a person applying the claimed tooth coating composition can easily apply the composition on the teeth without any aids to open the mouth. This is described in the paragraph [0045] of the specification as follows, "[t]he compositions which took 180 seconds or more to be dried in Test 1 (Example 5, Comparative example 1, Comparative example 5 and Comparative example 6) were not suitable for practical application ...".

Again, Table 4 was compiled using the information and data from Examples 1-8 of the disclosure. Accordingly, it illustrates the support in the disclosure for the content ranges of Rosin and Shellac + Rosin of the After Final Amendment.

For at least these reasons, Applicants respectfully submit that the features added in the After Final Amendment are fully supported by the disclosure, and thus, they do not constitute new matter.

### **III. Prior Art Rejection**

In the Advisory Action, the Examiner maintained the rejection of claims 1, 5, and 6 under 35 U.S.C. § 103(a) as being obvious over US 2002/0119105 in view of US 5,213,615, for the reasons set forth on pages 2-4 of the final Office Action.

The rejection is respectfully traversed, as applied to the amended claims. The arguments in the After Final Amendment are reiterated herein by reference.

Claim 1, as amended by way of the After Final Amendment, specifies that the content of the rosin is in a range of 5 wt.% to 15 wt.% in the entire composition, and the total content of the shellac and the rosin is in a range of 15 wt.% to 25 wt.% in the entire composition. By way of the instant amendment, claim 1 further specifies that the claimed tooth coating composition, when applied to teeth, has a drying time of less than 60 seconds and a durable duration of luster of at least 4 hours. Support can be found throughout the general disclosure. See for example, Table 1, paragraph [0049] of the originally filed application. See also Table 3 attached to the last response and Table 4 attached herewith.

As argued in the last response, US 2002/0119105, either alone or in combination with US 5,213,615, fails to disclose or suggest a tooth coating composition containing

shellac, rosin, and their solvent in the claimed amounts.

Indeed, the Examiner previously acknowledged this at page 6 of the Official Action dated July 22, 2009. Thus, neither reference discloses the effective range of shellac and rosin, as now recited in claim 1, i.e., rosin in a range of 5 wt.% to 15 wt.% and shellac in a range of 5 wt.% to 20 wt.% in the entire composition and the total content of the shellac and the rosin is in a range of 15 wt.% to 25 wt.% in the entire composition.

Yet, the Examiner has maintained the rejection on the grounds that it would have been routine to optimize the amounts of the "other resin" as disclosed in US 2002/0119105 to adjust the amount of rosin to arrive at the claimed ranges.

Applicants disagree. As argued in the After Final Amendment, a *prima facie* case of obviousness based on optimization of ranges and/or overlapping ranges can be rebutted by showing the criticality of the claimed ranges (MPEP §2144.05, III). In this regard, it is respectfully submitted that the claimed amounts of shellac in a range of 5 wt.% to 20 wt.%, rosin in a range of 5 wt.% to 15 wt.%, and the total content of the shellac and the rosin in a range of 15 wt.% to 25 wt.% in the entire composition are critical in that they result in a tooth coating composition having surprising and unexpected properties, with respect to drying

time and durable duration of luster, over anything that could be expected from the cited prior art references. It should be noted that claim 1, as amended, now positively recites the noted properties of a drying time of less than 60 seconds and a durable duration of luster of at least 4 hours.

Support for the unexpected properties can be found in the examples in the disclosure, as summarized in Table 3 (attached to the last response) and Table 4 (attached herewith). These Tables summarize the data of Examples 1-8, and comparative examples 1-6, and the result of tests 1-4.

As described in the disclosure and as shown in Table 4, all of Examples 1-8, except Example 5, have a drying time of less than 60 seconds and a durable duration of luster of at least 4 hours. In comparative examples 1-6, only comparative example 4 has a drying time of less than 60 seconds, but it has no the durable duration of luster of at least 4 hours. As shown in Table 4, a range of the content of rosins for Examples 1-8, with the exception of Example 5, is 5-15 wt%, and a range of the total content of shellac and rosin for Examples 1-8, with the exception of Example 5, is 15-25 wt%. Example 5 has excellent properties of luster, durability, removal easiness and hiding power, but its drying time of 180 seconds is too long.

As discussed herein and in the disclosure, the drying time of the applied coat in a human is preferably as short as possible. When the drying time is less than 60 seconds, a person applying the claimed tooth coating composition can easily apply the composition on the teeth without any aids to open the mouth. This is described in the paragraph [0045] of the specification as follows, "[t]he compositions which took 180 seconds or more to be dried in Test 1 (Example 5, Comparative example 1, Comparative example 5 and Comparative example 6) were not suitable for practical application ...".

Thus, as can be seen, in cases in which the content of rosin exceeded 15 wt% and in which the total content of the shellac and the rosin exceeded 25 wt%, as in Example 5, the tooth coating composition containing such did not get sufficient results in tests 1-4.

See also the discussion in paragraphs [0096] to [0100] of the instant disclosure, which discloses that mixing of shellac and rosin could efficiently suppress the coats from becoming opaque (Examples 1 to 4 and Examples 6 to 8).

See also the discussion at paragraph [0008], wherein it is disclosed that the claimed invention provides a tooth coating composition to be applied to form a coat giving luster similar to that of natural teeth, durability of the applied

coat, excellence of hiding power, and high safety to human body in the case it is applied to teeth (natural teeth, artificial teeth, or artificial crowns of teeth) by using shellac and rosin in combination; and without losing the quick drying property, the resin concentration can be increased by well combining the different properties of the shellac and rosin resins and accordingly, the strength of the coat can be heightened and the durability of the coat applied to teeth can be expanded.

See also paragraph [0010] of the instant disclosure, which discloses that if the content of the rosin to be added to a shellac ethanol solution is less than 1 wt. %, the effect of strengthening a coat is not so sufficient, and if it exceeds 30 wt. %, the composition becomes difficult to be used as a tooth coating agent due to difficulty in drying it.

Paragraph [0012] also discloses that if the total content of both the shellac and rosin is less than 10 wt.%, the strength of the coat is decreased and the hiding power of the color of teeth is decreased and therefore, no beautiful coat is obtained. On the other hand, if the total content of both is more than 31 wt.%, the quick drying property is deteriorated and the viscosity is too high to apply, resulting in easy formation of an uneven coat.

All of this is significant, because it points to the criticality of the specified amounts of shellac and rosin in the composition, as claimed, to obtain the unexpected properties, including a drying time of less than 60 seconds and a durable duration of luster of at least 4 hours.

However, as noted by the Examiner at page 3 of the Official Action dated July 22, 2009, US 5,213,615 discloses a composition containing 30% rosin, which is outside the 5 wt.% to 15 wt.% range of claim 1. Moreover, as discussed above, the data herein shows that in cases in which the content of rosin exceeded 15 wt% and in which the total content of the shellac and the rosin exceeded 25 wt% (in Example 5), the tooth coating composition containing such did not get sufficient results in tests 1-4, as compared the claimed invention.

All of this shows that the claimed ranges are critical as they result in compositions having superior properties over the prior art composition containing 30% rosin, as taught in US 5,213,615. Pursuant to US practice as enumerated at MPEP §2144.05, III, it is believed that such rebuts the Examiner's position that it would have been routine to optimize the amounts of the rosin to arrive at the claimed invention.

In fact, it could be said that this teaching in US 5,213,615 of a composition containing 30% rosin actually teaches away from the claimed amounts, because the skilled artisan, upon reading US 5,213,615, would not deviate from 30% rosin. This also points to the non-obviousness of the claims.

For these reasons, main claim 1 is believed to be novel and patentable over the combination of US 2002/0119105 and US 5,213,615. As all of the claims depend, either directly or indirectly, from claim 1, it is believed that the argument in favor of patentability of claim 1 suffices for all of the claims.

Thus, the obviousness rejection is untenable and should be withdrawn.

#### **IV. Conclusion**

Having addressed all the outstanding issues, this paper is believed to be fully responsive to the Office Action. It is respectfully submitted that the claims are in condition for allowance, and favorable action thereon is requested.

Appln. No. 10/556,914  
Amdt. dated August 4, 2010  
Reply to Office Action of May 4, 2010

If the Examiner has any comments or proposals for expediting prosecution, please contact the undersigned attorney at the telephone number below.

Respectfully submitted,

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**APPENDIX:**

The Appendix includes the following item(s):

- Table 4 (THIS IS NOT A DRAWING FIGURE)

Table 4

Table 4

Shellac + Rosin Tooth Coating Composition							
	Shellac	Rosin	Shellac+Rosin Total	Average drying time	Durable duration of luster of applied coat (Average values by evaluation of the four grade standard)		
	(wt%)	(wt%)	(wt%)	(second)	Immediately after application	2 hours later	4 hours later
Example 1	10	15	25	60	3.0	2.6	1.4
Example 2	10	15	25	45	3.0	2.6	1.4
Example 3	10	10	20	30	2.6	1.2	0.6
Example 4	10	15	25	60	3.0	2.6	1.2
Example 5	10	20	30	180	—	—	—
Example 6	10	15	25	45	1.6	0.8	0.4
Example 7	10	5	15	30	1.2	1.0	0.4
Example 8	10	5	15	45	1.2	1.0	0.4
Comparison 1	—	40	40	255	—	—	—
Comparison 2	—	20	20	150	2.4	1.8	0.8
Comparison 3	25	—	25	150	3.0	0.8	0
Comparison 4	10	—	10	20	1.2	0.8	0
Comparison 5	—	25	25	210	—	—	—
Comparison 6	25	—	25	180	—	—	—

Notes: 1: Table 4 is made by arranging [Example 1] [0028] -[Example 8] [0035], [Comparative Example 1] [0038]-[Comparative Example 6] [0043] and [0049] Table 1 in the original specification.

2. In the cases of (Examples 1, 2, 4 and 6) and (Examples 7 and 8), the contents of shellac and rosin are the same, but a species of the subspecies are different.